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Homicides --- United States, 1999--2007

Supplements

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During 1991--2007, homicide was ranked as one of the top four leading causes of death each year for persons aged 1--40 years living in the United States (1). Furthermore, vast disparities in homicide rates have been reported between males and females and among different age and racial/ethnic groups (2--6). For example, previous studies have indicated that rates of death from homicide are particularly high among males (4--6), persons aged 15--34 years and <1 year (5), and blacks (2,3,5,6). Homicide rates for males are estimated to be approximately 3--4 times higher than that for females (4,5); among persons aged 20--24 years, the male homicide rate is 6 times higher than that for females (1,5). In addition, minority racial/ethnic children and young adults in the United States are disproportionately affected by homicide. During 1999--2002, among persons aged 10--19 years, the homicide rate for blacks was estimated to be 17.8 per 100,000 population, a rate 10 times that of whites (1.8 per 100,000) and higher than the rates reported for American Indians/Alaska Natives (AI/ANs) (6.0 per 100,000), Asian/Pacific Islanders (A/PIs) (2.9 per 100,000), and Hispanics (8.0 per 100,000) (2).

To assess homicide rates in the United States by sex, age, and race/ethnicity for 2007, CDC assessed data from the CDC Web-based Injury Statistics Query and Reporting System --- Fatal (WISQARS Fatal) (1). This report summarizes these rates, identifies specific population groups with the highest rates of death from homicide, and provides homicide rates by race/ethnicity and year throughout a 9-year period (1999--2007). Additional details on homicide rates by these variables for each state and census region can be accessed through the WISQARS Fatal online query system (<http://www.cdc.gov/injury/wisqars/index.html>). Data on individual and socioeconomic risk factors for homicide were unavailable for analysis. In addition, sufficient data were unavailable to assess disparities by certain racial/ethnic subgroups, family income, educational attainment, disability status, and sexual orientation.

WISQARS Fatal provides injury mortality data by cause (e.g., firearm, poisoning, or suffocation) and manner of death (e.g., suicide, homicide, or unintentional injury) (1). Mortality data originate from the CDC National Vital Statistics System

(NVSS). NVSS collects death certificate data filed in the 50 states and the District of Columbia (7). Data in this report were based on homicides caused by any mechanism.

NVSS codes racial categories as white, black, AI/AN, and A/PI, and ethnicity is coded separately as Hispanic or non-Hispanic (7). All references to a specific race refer to non-Hispanic members (e.g., white non-Hispanic and black non-Hispanic).

Unadjusted and age-adjusted homicide rates per 100,000 population were calculated based on annual death counts and the 2000 U.S. standard population data from the U.S. Census Bureau (1). Confidence intervals (CIs) of rates were calculated in two ways: groupings of annual death counts of <100 were calculated by using a gamma estimation method (7), and groupings of annual death counts of ≥ 100 were calculated by using a normal approximation approach. Differences in two rates, when either rate was calculated from <100 deaths, were determined by comparing 95% CIs. Nonoverlapping CIs were considered statistically significant at the 0.05 level. However, this method is a conservative test for statistical significance, and the difference between two rates might be statistically significant even though their CIs overlap. Differences in two rates of ≥ 100 deaths, for which a normal approximation was appropriate, were tested by calculating a z test statistic (7), with an alpha level for significance of 0.05. Because the coding of the mortality data changed to the *International Classification of Diseases, Tenth Revision* (ICD-10) beginning in 1999, analyses by year and race/ethnicity were conducted for 1999--2007 to examine rate changes during that period. To compare differences in rates across the years 1999--2007, trend analyses were conducted using a negative binomial rate regression model (8).

During 2007, homicide rates were highest among persons aged 15--34 years, and the overall unadjusted rate for males was approximately 4 times that of females (9.8 versus 2.5 deaths per 100,000 population, respectively) ([Table 1](#)). Unadjusted homicide rates were highest among blacks (23.1 deaths per 100,000), followed by AI/ANs (7.8) and Hispanics (7.6), then whites (2.7) and A/PIs (2.4) ([Table 1](#)).

Additional analyses by age, race/ethnicity, and sex revealed that black males aged 15--34 years were at greatest risk for death by homicide ([Table 2](#)). Based on the available data, black females also had the highest homicide rates compared with females in other racial/ethnic groups within each age category, with the exception of women aged 30--49 years ([Table 2](#)). Within this age group, a statistical difference between the rates of black and AI/AN women could not be determined. Both rates were significantly higher than those of white, Hispanic, and A/PI women. (All comparisons were significant at the $p < 0.05$ level.)

During the 9-year study period, trend analyses revealed that the age-adjusted homicide rates increased for blacks and decreased for Hispanics and A/PIs ($p < 0.05$) ([Figure](#)). Furthermore, trend analyses revealed that the between-group differences in the modeled age-adjusted homicide rates for blacks versus AI/ANs, blacks versus A/PIs, and blacks versus Hispanics increased over the 9-year period ($p < 0.05$). However, these changes were slight and likely detected because large populations were analyzed. Age-adjusted homicide rates were consistently highest among blacks, ranging from 20.6 to 22.4 deaths per 100,000 persons ([Figure](#)). Each year, the rate among blacks was approximately 2--3 times higher than among AI/ANs and Hispanics and at least 5 times higher than A/PIs and whites.

Similar to previous findings, results of this study indicate that homicide disparities by age, race/ethnicity, and sex are evident ([2,3,5](#)), and the homicide rate is particularly high among young black males ([2,3](#)). Individual factors (e.g., employment status) and socioeconomic factors (e.g., poverty and economic inequality) play critical roles in racial/ethnic disparities in homicide (9). For example, persons of a minority race are more likely than those of other racial/ethnic backgrounds to be unemployed and to live in economically impoverished residential areas; both factors are associated with a higher homicide risk (9).

Among females, blacks had higher homicide rates than other racial/ethnic groups; however, AI/AN women aged 30--49 years also had high rates. These findings indicate heightened risk for females during adulthood, which might be indicative of intimate partner--related homicide. These findings also are consistent with a study that reported high rates of intimate partner-related homicide among black women aged 20--39 years ([10](#)) and another study that estimated that one third (30.7%) of AI/AN women aged ≥ 18 years had been physically assaulted by an intimate partner in their lifetime ([11](#)).

Although the 1999--2007 homicide rates were highest among blacks, their rate for 2007 represents a substantial decrease compared with the early 1990s. In 1991, the homicide rate among non-Hispanic blacks peaked at 38 deaths per 100,000 population (1), which was nearly twice the rate reported in 2007. Similar decreases from the early 1990s to the mid-2000s were observed among the other racial/ethnic minorities (1).

The findings in this report are subject to at least two limitations. First, because the numbers of homicides among AI/AN and A/PI populations were limited, some rates could not be estimated reliably by age and sex. Second, death certificate data have historically underclassified decedents as AI/AN, A/PI, or Hispanic and overclassified decedents as black or white ([2,12](#)). Therefore, homicide rates in this report might be underestimates for the AI/AN, A/PI, and Hispanic populations and overestimates for the black and white populations.

Homicide is an extreme outcome of the broader public health problem of interpersonal violence. Despite the promising decrease in certain homicide rates, primary prevention efforts against violence should be increased, particularly among

young racial/ethnic minority males. Effective evidence-based strategies are available to reduce youth violence (13). For example, universal school-based interventions, at all school levels, that are aimed at reducing youth violence are promising. Such interventions teach students the skills to reduce violent and aggressive behavior, as well improve emotional well being, self-esteem, positive social skills, social problem-solving skills, conflict resolution skills, and team work (14). However, additional work is needed to build organizational and community capacity to use effective approaches, and research is needed to understand how best to adapt, disseminate, and implement these strategies within the communities and populations in greatest need. Furthermore, more investigation is needed to identify the factors that cause homicide disparities by age, sex, and race/ethnicity so that prevention efforts can better address the needs of those at highest risk.

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TABLE 1. Homicide rates,* by sex --- National Vital Statistics System, United States, 2007									
Characteristic	Male			Female			Total		
	No. of deaths	Rate	(95 % CI†)	No. of deaths	Rate	(95 % CI)	No. of deaths	Rate	(95 % CI)
Age group (yrs)									
0--4	419	4.0	(3.6-4.3)	331	3.3	(2.9-3.6)	750	3.6	(3.4-3.9)
5--9	66	0.7	(0.5-0.8)	67	0.7	(0.5-0.9)	133	0.7	(0.6-0.8)

10--14	144	1.4	(1.2- -1.6)	69	0.7	(0.5- -0.9)	213	1.0	(0.9- -1.2)
15--19	1,932	17.6	(16.8- -18.4)	292	2.8	(2.5- -3.1)	2,224	10.4	(9.9- -10.8)
20--24	2,897	26.8	(25.8- -27.8)	430	4.2	(3.8- -4.6)	3,327	15.9	(15.3- -16.4)
25--29	2,306	21.5	(20.6- -22.4)	411	4.0	(3.6- -4.4)	2,717	13.0	(12.5- -13.5)
30--34	1,713	17.4	(16.6- -18.2)	328	3.4	(3.1- -3.8)	2,041	10.5	(10.0- -11.0)
35--39	1,254	11.8	(11.1- -12.5)	365	3.5	(3.1- -3.8)	1,619	7.7	(7.3- -8.0)
40--44	1,035	9.5	(8.9- -10.0)	398	3.6	(3.3- -4.0)	1,433	6.5	(6.2- -6.9)
45--49	881	7.8	(7.3- -8.3)	353	3.1	(2.7- -3.4)	1,234	5.4	(5.1- -5.7)
50--54	691	6.7	(6.2- -7.2)	215	2.0	(1.7- -2.3)	906	4.3	(4.0- -4.6)
55--59	453	5.1	(4.6- -5.6)	146	1.6	(1.3- -1.8)	599	3.3	(3.0- -3.5)
60--64	274	4.0	(3.5- -4.4)	107	1.4	(1.1- -1.7)	381	2.6	(2.4- -2.9)
65--69	165	3.3	(2.8- -3.8)	75	1.3	(1.0- -1.6)	240	2.2	(1.9- -2.5)
70--74	114	2.9	(2.4- -3.5)	57	1.2	(0.9- -1.6)	171	2.0	(1.7- -2.3)
75--79	94	3.0	(2.4- -3.7)	52	1.2	(0.9- -1.6)	146	2.0	(1.7- -2.3)
80--84	55	2.5	(1.9- -3.2)	67	1.9	(1.5- -2.4)	122	2.1	(1.8- -2.5)
≥85	26	1.5	(1.0- -2.1)	54	1.4	(1.1- -1.9)	80	1.5	(1.2- -1.8)

Race / Ethnicity									
White, non-Hispanic	3,669	3.7	(3.6- -3.8)	1,843	1.8	(1.7- -1.9)	5,512	2.7	(2.7- -2.8)
Black, non-Hispanic	7,477	41.4	(40.4- -42.3)	1,269	6.4	(6.0- -6.8)	8,746	23.1	(22.6- -23.6)
American Indian/Alaska Native	147	11.8	(9.9- -13.6)	52	4.0	(3.0- -5.3)	199	7.8	(6.7- -8.9)
Asian/Pacific Islander	236	3.4	(3.0- -3.9)	105	1.5	(1.2- -1.7)	341	2.4	(2.2- -2.7)
Hispanic	2,926	12.5	(12.0- -12.9)	540	2.5	(2.2- -2.7)	3,466	7.6	(7.4- -7.9)
Total [§]	14,538	9.8	(9.6- -10.0)	3,823	2.5	(2.4- -2.6)	18,361	6.1	(6.0- -6.2)

Abbreviation: CI = confidence interval.

Source: Xu J, Kockanek KD, Murphy SL, Tejada-Vera B. Deaths: final data for 2007. Hyattsville, MD: US Department of

Health and Human Services, CDC, National Center for Health Statistics; 2010. National Vital Statistics Report Vol. 58, No. 19. Available at http://www.cdc.gov/NCHS/data/nvsr/nvsr58/nvsr58_19.pdf .

* Per 100,000 population.

† CIs based on <100 deaths were calculated by using a gamma method; CIs based on ≥100 deaths were calculated by using a normal approximation.

§ Total counts include 97 deaths among persons of unknown ethnicity and 25 deaths among persons of unknown age.

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TABLE 2. Homicide rates,* by race/ethnicity --- National Vital Statistics System, United States, 2007										
Age group (yrs)	White, non-Hispanic		Black, non-Hispanic		American Indian / Alaska Native		Asian / Pacific Islander		Hispanic	
	Rate	(95 % CI†)	Rate	(95 % CI)	Rate	(95 % CI)	Rate	(95 % CI)	Rate	(95 % CI)
Male										
0--4	3.0	2.5--3.4	10.1	8.5--11.7	---§	---	---	---	2.8	2.2--3.6
5--9	0.6	0.4--0.8	1.4	0.9--2.1	---	---	---	---	---	---
10--14	0.4	0.2--0.5	4.6	3.6--5.8	---	---	---	---	1.9	1.4--2.6
15--19	3.4	3.0--3.8	69.1	65.1--73.0	---	---	5.2	3.3--7.7	24.8	22.5--27.0
20--24	6.3	5.7--6.9	109.4	104.2--114.6	22.9	15.0--33.5	8.8	6.3--11.8	35.9	33.2--38.5
25--29	6.4	5.8--7.0	94.6	89.5--99.7	26.6	17.3--38.9	4.6	3.0--6.81	22.3	20.4--24.2
30--34	6.0	5.4--6.6	76.5	71.6--81.5	24.3	14.8--37.5	4.6	3.1--6.6	18.1	16.3--19.9
35--39	5.0	4.5--5.6	50.7	46.7--54.6	---	---	3.8	2.41--5.6	12.2	10.7--13.8
40--49	4.8	4.4--5.1	31.8	29.6--34.0	14.4	9.3--21.3	3.0	2.1--4.3	9.8	8.7--10.9
50--59	3.7	3.4--4.1	22.2	20.1--24.3	---	---	3.1	2.0--4.6	7.2	6.0--8.5
60--69	2.4	2.1--2.7	14.5	12.2--16.9	---	---	---	---	4.4	3.2--6.0
≥70	2.0	1.7--2.2	10.0	7.9--12.4	---	---	---	---	3.7	2.4--5.4
Total	3.7	3.6--3.8	41.4	40.4--42.3	11.7	9.9--13.6	3.4	3.0--3.9	12.5	12.0--12.9
Female										
0--9	1.4	1.2--1.7	4.3	3.6--5.1	---	---	---	---	2.1	1.7--2.6
10--19	1.1	1.0--1.3	4.5	3.8--5.3	---	---	---	---	1.7	1.3--2.2
20--29	2.6	2.3--2.8	11.3	10.1--12.6	---	---	2.1	1.3--3.2	4.1	3.4--4.8

30--49	2.5	2.3--2.7	8.8	8.0--9.5	6.8	4.4--10.2	1.8	1.3--2.4	2.9	2.5--3.3
50--69	1.4	1.3--1.5	3.3	2.8--3.9	---	---	1.6	1.0--2.4	1.4	1.0--1.9
≥70	1.3	1.1--1.5	2.9	2.1--3.9	---	---	---	---	---	---
Total	1.8	1.7--1.9	6.4	6.0--6.8	4.0	3.0--5.3	1.4	1.2--1.7	2.5	2.2--2.7

Abbreviation: CI = confidence interval.

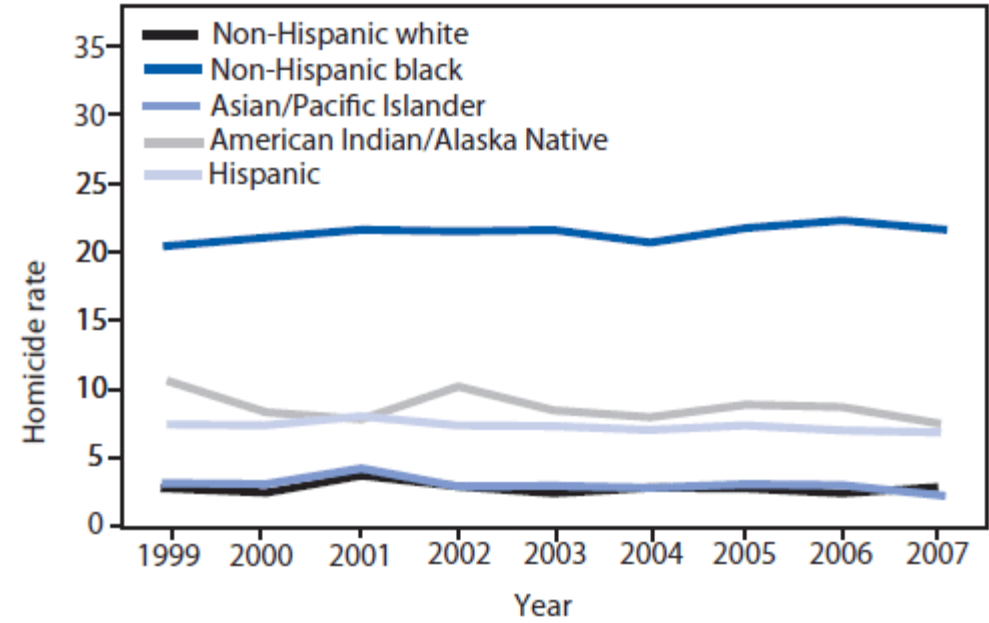
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* Per 100,000 population.

† CIs based on <100 deaths are calculated by using a gamma method; CIs based on ≥100 deaths are calculated by using a normal approximation.

§ Rates unreliable (calculated from <20 deaths).

FIGURE. Age-adjusted homicide rates,* by race / ethnicity and year --- National Vital Statistics System, United States, 1999--2007



*Per 100,000 population.

Alternate Text: The figure is a line graph showing that during 1999-2007, age-adjusted homicide rates per 100,000 population were highest among non-Hispanic blacks and lowest among whites and Asians/Pacific Islanders. During the 9-year study period, rates increased for blacks and decreased for Hispanics and Asians/Pacific Islanders.

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